

## *IP Telephony Frequently Asked Questions – Miton's VoIP+Plus Internet Call System*

### The case for IP based Business Telephony

The major advantages of this approach to business telephony are twofold; you can save money by halving the number of cables required on every employee's desktop, while greatly increasing efficiency through tighter integration between your phone system and any line of business applications you may be running, or planning to implement, on your PC network. Running an IP hard phone to your desktop means a single LAN cable, your desktop PC connects to the built-in switch on the phone, reducing the amount of copper plant, LAN cables and LAN infrastructure switch ports required by 50% - a great saving whatever your size of company. For an IP soft phone the same is true, there's only one cable to your PC, which handles phone calls and network traffic. Due to the distributed and flexible nature of the VoIP+Plus Call System architecture, even the continued use of traditional analogue phones means less cabling, with up to 30 twisted pair copper cables being replaced with a single LAN cable. In some cases, through the deployment of a wireless LAN, there may be no cables at all! As your PC LAN network runs a protocol called IP (Internet Protocol) and your telephone system now utilises the very same protocol for transporting voice calls, it becomes much easier to integrate information relating to phone calls into LAN based applications. Up until now this has been achieved through the use of CTI (Computer Telephony Integration), which allowed some information on phone calls to be passed through to the PC network, via a gateway. This approach tended to be expensive to deploy and labour intensive to install, support and maintain. Now the telephone system and the PC network live on the LAN and talk the same language, reducing the cost of implementation. This makes the VoIP+Plus Call System the ideal platform for rolling out line-of-business applications. Miton have taken this winning approach to business telephony one stage further by fusing phone and application together into platform.

### Why Invest in VoIP?

Internet Protocol (IP) is the term used to describe the communications protocol used to transport data over the great majority of Local Area and Wide Area Networks.

### What is VoIP?

This over generalised and over used acronym stands for Voice over Internet Protocol. VoIP converts analogue speech into an IP data stream, which allows it to be transported over a data network such as the Internet, or an office Local Area Network.

### What is the value of IP?

It is widely, almost universally, adopted by all businesses in the commercial world. It is a working and accepted standard on which the growth of data networking has and will be based.

### So, why Voice over IP?

It is the simple idea of using the same network for transporting voice traffic that you use (or intend to use) for data traffic. IP forms the basis of the majority of computer communications both internally and across networks and as such is an ideal protocol for the transport of voice traffic.

### Is VoIP the same as IP Telephony?

VoIP is an umbrella term for the transportation of voice over a data network. IP Telephony is the conversion of analogue voice into a data stream using IP data conventions - and relies on an IP device(s) for switching and call processing.

### How will it save me money?

#### Installation and Maintenance Costs.

For backbone installations the cable used for IP data can carry the equivalent of hundreds of pairs of conventional copper cable, which have traditionally, been used for voice traffic. This results in less work, less capital and less maintenance. For desktops that have a PC and a telephone present only one socket need be installed at each desk. An IP phone plugs into the wall or floor mounted Ethernet socket, while the PC connects to a second LAN port on the IP phone.

#### Cost of Telephone Calls

Where an existing private data network exists to carry data between buildings on a campus or across nationally distributed premises and telephone calls between locations are made using the PSTN (charged on a per minute basis), you can use the same data infrastructure, an existing or pre-paid overhead, to carry the voice traffic but with no cost of calls.

#### Management Costs

The cost of human and technical resource is vastly reduced through the implementation of a single network for both voice and data traffic.

#### So it just saves me money?

It will also improve productivity and efficiency through the convergence of your customer facing telephone resource with your customer facing business applications.



#### Application Convergence

The evolution of Computer Telephony Integration produced improved customer service through the implementation of gateways, which allowed the disparate worlds of voice and data to pass information to each other. These gateways were often cumbersome and expensive to implement and in some cases prohibitively expensive. IP telephony completes the evolutionary cycle by integrating information relating to phone calls into LAN based applications. With a VoIP implementation both the PC/LAN and the Telephone System talk the same language creating the opportunity for simple cost effective integration of line of business application.

#### Isn't it a very high cost capital expenditure?

The principal of VoIP is based on increased payback through improved efficiency and reductions in Total Cost of Ownership. If you have existing investment in LAN/WAN infrastructure VoIP is designed to optimise economies of scale from existing investment.

#### Do I need to re-invest in IP telephones for every user?

This is entirely optional dependent upon the features and facilities required at each location.

#### Does this mean I can run a mix of IP phones and analogue phones on a system?

Absolutely.

#### But will I be restricted in my choice of IP phones?

No. VoIP+Plus Call System allows you to use ANY IP phone that conforms to the widely deployed SIP standards and H.323/H.450 standard.

#### OK, but this is new and my choice will be limited.

There are many manufacturers building IP phones to the standards which are available today.

#### What about my existing investment in cabling?

Most businesses already have some form of cabling infrastructure in place. Significantly most new buildings these days are being flood wired with CAT 5 (or better) cabling as a 'given' in pretty much the same way as

electricity outlets. This is the perfect infrastructure over which to run your voice and data communication needs.

You do not need to replace your existing investment. VoIP+Plus Call System will take advantage of whatever you have in place, be it copper or CAT 5.

#### What about my existing investment in phones?

If you wish you can continue to use all types of existing analogue phones and retain the core copper cabling used by these devices. In fact VoIP+Plus Call System can reenergise these functional instruments substantially. VoIP+Plus Call System provides a free of charge Software based phone which runs on the PC. This sits along side your existing (or new) analogue instrument but lifts its value into the 21st Century by providing all the features and benefits of the VoIP+Plus Call System.



#### Does that mean I can get IP telephony benefits at the PC desktop without any additional cost?

Virtually, yes. All that is required is that the VoIP+Plus Call System Call Server is connected to your LAN network allowing an 'association' to be made between PC's and Analogue extensions at the desk top.

#### What will the quality of voice calls be like?

The quality of voice calls across a well installed VoIP+Plus Call System is as good as, and in some cases better, than you'd associate with a traditional PBX. Problems with VoIP voice quality in the technologies' early life have been resolved by techniques that ensure sufficient bandwidth is always available.

#### How do I know I will have the bandwidth available on my data network?

For a totally converged VoIP solution to be optimised it is necessary to run LAN switches on your network that support Quality of Service capability.

#### What is Quality of Service capability?

Quality of Service (or QoS) is all about the ability to provision the appropriate bandwidth for each application you run on your network. As voice calls are particularly sensitive to delay QoS also means giving voice priority over data traffic in a converged network.

#### What if I don't have "Quality of Service capability"?

You can still access the advanced feature benefits of VoIP+Plus Call System by keeping your voice and data traffic separate or you can decide to upgrade the LAN switches to achieve full integration.

#### Even with QoS capability, how do I know that the additional bandwidth demands of voice traffic will not crash or clog my network?

Traditional PBXs existed in their own separate world. Phones were directly connected to the PBX, which had the processing capacity to switch a finite number of these phones. This gave an overall system capacity. The LAN world, on the other hand, is completely un-deterministic in nature. As new applications are added and work patterns change, so the bandwidth requirements increase, leading to the need for equipment upgrades and infrastructure changes. It is to this constantly evolving world that VoIP and IP telephony belong. As a ready reckoned, each Ethernet cable can handle at least 300 phone calls at 100Mbps and 30 phone calls at 10Mbps. On the backbone you'll need to add in your current data traffic requirements. However, QoS will ensure that your voice traffic gets priority and that voice quality is maintained. As each installation will be totally unique, your VoIP+Plus Call System supplier will be able to discuss your particular needs with you and offer recommendations on network design and implementation.

#### All or nothing sounds very expensive and very risky?

That's why VoIP+Plus Call System can be implemented as a 'Drop In' replacement PABX with NO IP handsets, allowing you to graduate to part or full IP Telephony at a pace to suit your needs and budget.

#### Isn't it a massive project?

No, not if you don't want it to be - you can do a bit at a time to suit your business needs and budget or you can of course choose to go all the way from day one.

#### Won't I have to upgrade my entire data network?

No, not at all, however you may appreciate the value of upgrading existing LAN Switches to accommodate QoS features. Many manufacturers provide this as a software only upgrade.

#### Is it really possible to do 'a bit' at a time?

Yes, absolutely!

#### What if I have a relatively new investment in a traditional PABX but would like to benefit from the application features of the VoIP+Plus Call System?

Deploying VoIP+Plus Call System as part of your existing PABX can be achieved simply via PRI or BRI S Bus connection.

#### What if I have a relatively new investment in a traditional PABX but need a new telephone system on the network at a new location?

No problem. The implementation of an H.323 Media Gateway allows voice network integration over DPNSS and Q SIG Links.

#### Why should I be a pioneer?

You won't be! It only took two years from the introduction of IP Telephony into the UK in 1999 to the stage where sales of IP-enabled PBX's surpassed those of traditional PBXs during 2001. Companies as diverse as Lloyds of London, Vosper Thorneycroft and HJ Heinz all rely on IP Telephony for their phone calls. All the major telecoms providers are gearing up to convert to IP telephony in the future.

#### Will I be able to use centralised services, such as Audio Conference Bridge?

Yes, all the features of the VoIP+Plus Call System, including Audio Conferencing are available to all users.



# VoIP versus Traditional Telephony

How does VoIP work? Like many people, you may have already heard of VoIP. If you weren't born in this decade, you may still wonder what it really is. What can VoIP do for you and how exactly is it useful?

## Basic Concept

VoIP stands for voice over internet protocol. These days, it is considered an alternative to the typical method of communication involving telephones. Instead of using telephone sets that transmit analogue signals, VoIP converts these signals to digital chunks. These are reconverted to audio data when it reaches the recipient. The entire transmission happens over the internet. Although VoIP technology is still far from being preferred and considered standard, some people think that VoIP will eventually replace telephones. It could very well be the next step in communications technology.

## The Specifics

So how does VoIP work exactly? VoIP is best understood by understanding typical phone calls first. Regular phone calls make use of what is called circuit switching. When you make a call, your call is passed through a series of switches starting from your phone carrier. Once the other party answers the call, the circuit between the two of you is opened. The intelligence of the system is contained within the telephone switch provided by your telephony supplier. E.g. British Telecom. You use phones with no intelligence to connect to the telephone network.

Instead of circuit switching VoIP uses packet switching. In this technology, your voice is converted to little packets of data. **These packets of data come with their instructions of**

**where they should be sent.** They are then sent through a variety of possible routes. They take the nearest router and are passed on to succeeding routers until they reach the recipient. When the packets are received, they are reassembled into a form that can be understood. The intelligence of the system is contained within the end-points NOT the network. The end-points create data packets that know where they should terminate and use the IP network simply as a path to get there. This means that you can use a VoIP phone over any data network that will carry the data. E.g. from a hotel room with broadband.

## Advantages of VoIP

VoIP can offer all the features and benefits of a phone service. Its advantage over traditional phones is that VoIP calls can be made from almost any part of the world. Wherever there is an internet connection, you can have VoIP. The technology can provide cheaper calls than standard telephone technology. This is mainly because VoIP does away with costly circuit switching.

## Disadvantages of VoIP

VoIP can be fast, convenient and cheap. It has, however its own disadvantages. These disadvantages are basically due to: (1) the current reliance of present systems on telephone technology; and (2) the shortcomings that plague computer technology.

Telephone Connections - Such services for example as security and cable still rely on telephone connections. Unless the whole country or world agrees to switch to VoIP, these services are likely to stick to their old methods.

This is not the biggest concern though. Since VoIP relies on internet technology, it is also susceptible to the problems that confront the internet and computers. You can therefore expect such problems as viral attacks, crashes and stolen packets.

Now you know the basic answer to how does VoIP work. In reality, this piece of technology does hold a lot of potential. Like everything else, the old ways of communicating over long distances can change. VoIP is the first logical shift that can be taken. It may take a long time however, before VoIP can become a fully integrated and snag free system.

The concept of communication has undergone a sea change with the arrival of Voip services. The unbelievable rate offered by Voip services is its greatest advantage.

VoIP, short for Voice over Internet Protocol, is a technology that enables telephone calls to be made over a broadband internet connection. VoIP services use the broad band internet connection to transmit the data packets as opposed to the wires in a conventional telephone. One of the most important features of VoIP services is its affordability. With the help of VoIP service, one can make long distance calls at low rates when compared to the traditional telephone calls. This is mainly due to the fact that transferring digital signals over internet is much cheaper than transferring analogue signals over normal phone lines.

VoIP is a relatively new technology that facilitates voice communication over the internet. In other words, VoIP services use the broad band internet connection to transmit the data packets as opposed to the wires in a conventional telephone. In the following paragraphs, we'll see a brief comparison between VoIP services and traditional phone services.

The biggest plus of VoIP services, as opposed to traditional phone services, is its easy

installation features and low cost. What all one may need to start using VoIP is a PC, broadband connection, and soft-phone installed on your PC. Alternately, you can replace the soft-phone with a VoIP Desk Phone.



Another aspect that differentiates VoIP services and traditional phone services is the formers' flexibility. That is, while normal telephones are permanently linked to the telephone lines, VoIP phones can be taken anywhere in the world along with you. Then, by attaching it to a normal internet connection, you can make VoIP calls for no additional cost.

Now, here are some of the disadvantages of VoIP services over traditional phone services. VoIP is power dependent. That is, if the power supply goes off, VoIP facility also goes redundant just like your cordless phone. Functional glitches can also arise if the broadband connection or its switch develops some technical problem.

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